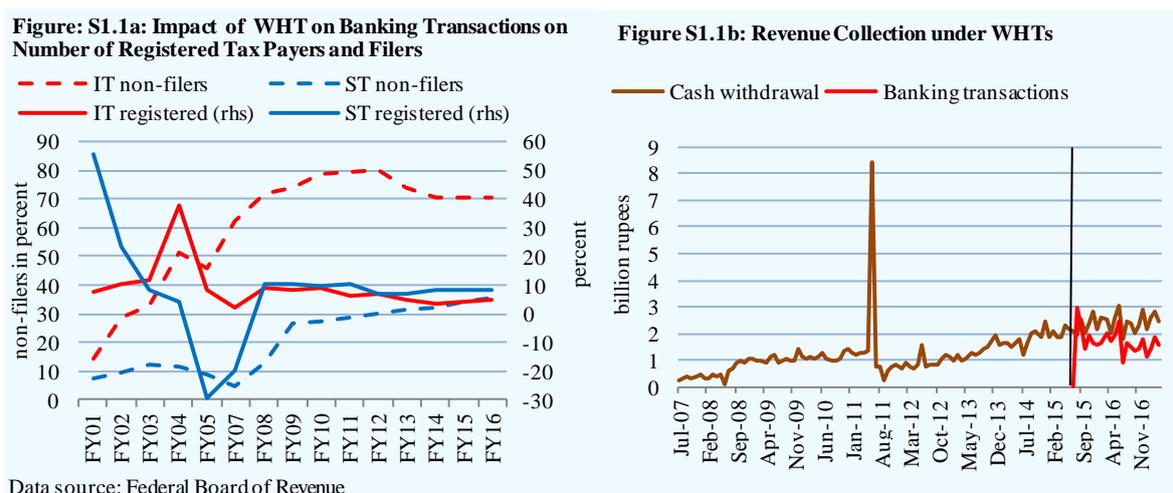


Special Section 1: Impact Analysis of Withholding Taxes on Cash Withdrawal and Banking Transactions

Over the last few years, the government has undertaken several reforms in its efforts to increase tax revenue by expanding the tax base. One of these was the introduction of withholding tax (WHT) on non-cash banking transactions.¹ Earlier, the government had imposed a withholding tax on cash withdrawal in order to discourage the cash economy.² In essence, these measures increased the transaction cost for non-filers, as filers can reclaim the amounts paid as advance taxes. It was expected that this tax would help expanding the tax base by encouraging more people to file income tax returns and come under the tax net.

The introduction of the transaction tax led to some increase in the number of income tax filers but not to sales tax filers. The reason is that many salaried persons who were already paying income tax but were not filling tax returns started to do so to qualify for the adjustment against the advance tax payments. Despite this, the number of non-filers as a percent of the registered income tax payers remained high around 70 percent in FY16 (**Figure S1.1a**).

Though the incentive of tax adjustment is also available for sales tax payers, delays in processing of refund claims may have discouraged potential and current sales tax filers from filing their returns. As **Figure S1.1a** suggests, the non-filers witnessed a secular increase in FY16, even when this tax became effective.



Moreover, the contribution of these direct taxes to the national exchequer remains meagre (**Figure S1.1b**). The WHT on cash withdrawals and on banking transactions respectively has contributed on average 0.9 percent and 0.6 percent annually to the FBR tax revenue, since July 2015.

While the WHT on non-cash banking transactions seems to have had a negligible impact on revenue collections and incentivizing tax filing, it instead led to an increase in currency in circulation and a decline in private business deposits. Currency in circulation grew by 21.5 percent on average during July 2015 to June 2017 against an average growth of 14.0 percent recorded in the past 11 years prior

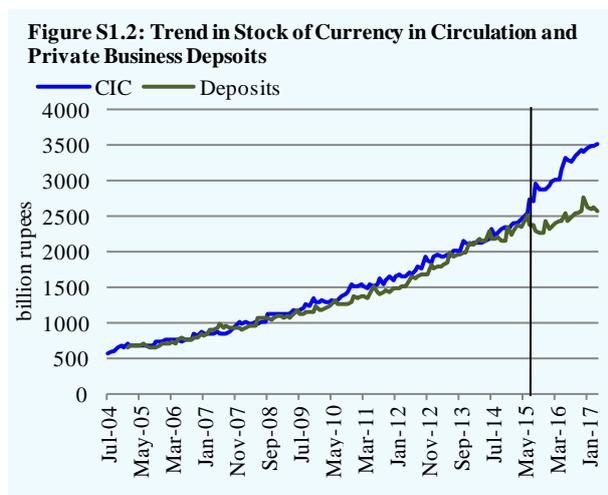
¹ The government imposed a withholding tax on non-filers of income tax returns through the Finance Bill 2015, initially at the rate of 0.6 percent on all non-cash banking transactions. Later, the tax rate was lowered to 0.4 percent after opposition from some section of society.

² Through the Finance Act, 2005, the government imposed withholding tax, initially at the rate of 0.1 percent, on cash withdrawals from banks exceeding Rs.25,000 in a day. Both tax rate and cash withdrawal limit have changed since then. For FY18, a WHT of 0.3 percent and 0.6 percent applies on filers and non-filers respectively on cash withdrawal exceeding Rs.50,000 per day. However, filers can claim for refund of the amount paid in this tax.

to its imposition that is, between July 2004 to June 2015.

Private business deposits as a percentage of total deposits, on the other hand, declined from 27.6 percent to 25 percent after imposition of the WHT on banking transactions (**Figure S1.2**).³ This shows that the imposition of the WHT on banking transactions apparently defeated the very purpose for which it was imposed that is, to discourage the cash economy.

Though the likely impact on the behaviour of currency and deposits has been flagged earlier, the lack of information prevented any early impact assessments of these taxes on the financial sector.



To determine whether there is a structural shift coinciding with the introduction of advance tax on banking transaction, structural break tests were applied on both currency and deposit series. The results show that these have experienced structural shifts: growth in currency in circulation since June 2015 in and deposit from November 2015 onwards, instead of July 2015 when WHT on banking transaction became effective. In case of the latter, there was considerable uncertainty following the imposition of WHT, as the business community was strongly resisting imposition of the tax. Perhaps by November 2015, they might have realized that the tax was not going to be withdrawn, and adjusted their behaviour accordingly.

To draw reliable economic inferences, this analysis has used first unit roots tests and then rudimentary ordinary least square regressions: with focus on growth in currency in circulation, deposit ratio and FBR tax revenue.⁴ The results of the unit root tests suggest that all the variables involved in this analysis are following mean reverting process.⁵

Therefore, a simple Ordinary Least Square regression can safely be used for drawing economic inferences. Two dummies were introduced for this purpose. These assume unit value from July 2005 and July 2015, representing imposition of WHT on cash withdrawal and on non-cash banking transactions, and zero otherwise. Specifically, the dummy representing WHT on the non-cash banking transaction in the model for deposits assumes unit value from November 2015, instead of July 2015 as this series experienced shift from November 2015.

³ For this special section, the private sector's deposits with the banking system have been used since tax on financial transaction is unlikely to impact government deposits.

⁴ The widely used generic unit root tests are Augmented Dickey-Fuller (ADF) and Phillips –Perron (PP) test. The null hypotheses of these tests are that the series is not following a mean reverting process. Moreover, this study also used Perron and Vogelsang (1992) unit root test which incorporates structural break. This test distinguishes structural break in two categories: an additive outlier and an innovative outlier. The additive outlier test checks if there is a sudden change in the mean, while the innovative outlier test assesses if the change is gradually taking place. The null hypothesis of these tests is that the series is not mean reverting.

⁵ All variables, except the deposit ratio, show mean-reverting behaviour when subjected to generic (i.e., ADF and PP) unit root tests. Deposit ratio also shows mean-reverting behaviour once the structural shift of November 2015 is incorporated using the Perron and Vogelsang (1992) unit root test. The strong presence of structural shift in deposit ratio suggests that some of the agents may have left the deposit market permanently after the imposition of WHT on non-cash banking transactions. This tax, therefore, may have promoted financial exclusion, against the current policy objective of encouraging financial inclusion.

Table S1.1 shows the estimation results. Both currency in circulation (growth in CiC) and deposit ratio, show significant persistence, as past values have considerable impact on current values of these variables.

The result of the currency in circulation model suggests that the imposition of WHT on cash withdrawal has a negative but statistically insignificant impact on CiC growth. As the objective of the WHT on cash withdrawals was to discourage the cash economy, the negative coefficient of WHT on cash withdrawals was expected. The imposition of the WHT on non-cash banking transactions, on the other hand, has positive and significant impact, leading to 3.7 percentage points increase in growth of currency in circulation.

On the contrary, results suggest that imposition of WHTs led to decline in the deposit ratio. However, the impact of WHT on the financial transactions is statistically significant and higher indicating that it affected the private business deposits more strongly compared to the WHT on the cash withdrawal.

The estimation result of the model for FBR tax collections also confirms that the WHT had significant positive impact on the FBR Tax revenue. In case of revenue, however, WHT on cash withdrawal has strong positive impact compared to the tax on non-cash banking transaction. In particular, a 0.1 percent increase in the WHT on the cash withdrawals leads to 0.13 percent increase in the FBR tax revenue, while similar increase in the tax on banking transactions leads to only 0.009 percent increase in the FBR tax revenue.

To check the robustness of the estimates, three relevant variables: weighted average deposit rates, overnight repo rate, and exchange rate were introduced to capture the impact of return on deposits in the interbank market and in the foreign exchange market respectively. These variables were found statistically insignificant.⁶ Moreover, the initial estimates of the coefficients remain more or less same after introduction of these variables, indicating robustness of the results reported in **Table S1.1**. Moreover, the outcomes of the diagnostic test, reported in lower half of the **Table S1.1**, also suggest that estimates are reasonably reliable.⁷

In effect, this analysis suggests that the economic cost of imposing WHT on non-cash banking transactions need rethinking.

⁶ The results of these tests can be provided on request.

⁷ Adjusted R-Square, reported in **Table S1.1**, shows that the explanatory powers of the models are reasonable. In order to test the first order serial correlation, Breusch–Godfrey test for serial correlation in the disturbance is used. The null hypothesis of the test is no serial correlation in the residuals. To assess the normality of the residual distribution, Jarque-Bera test is used. The null hypothesis of this test is that the errors are normally distributed. *P*-value of less than 0.05, in parenthesis, suggests that null hypothesis is rejected at 5 percent level of significance for the model of currency in circulation. Further assessment suggests that these problems are less severe in nature. The first order correlation disappears when higher order lags included in the test. Moreover, normality assumption of residuals in small sample often does not hold. A graphical presentation of the Kernel density estimate, a generalized and improved method of presenting histogram, suggests that residuals are distributed very close to the normal.

Dependent Variables	Growth in CiC	Deposit ratio	FBR tax
Dependent (-1)	0.573* [0.000]	0.822* [0.000]	
WHT on cash withdrawal	-0.684 [0.453]	-0.294 [0.197]	1.341* [0.000]
WHT on non cash banking transactions	3.724* [0.000]	-0.462* [0.007]	0.090* [0.008]
Constant	15.292* [0.000]	5.152* [0.001]	4.324* [0.000]
Adjusted R-squared	0.589	0.873	0.703
Autocorrelation (Chi-Sq)	5.044** [0.025]	0.544 [0.461]	0.724 [0.395]
Normality	23.189* [0.000]	0.588 [0.745]	0.402 [0.818]

Notes: Growth in CiC is growth in currency in circulation. Deposit ratio is the ratio of private business deposits to the total deposit. FBR tax and withholding taxes (WHTs) are monthly. Total tax revenue and the revenue collected in respective WHT heads by FBR. Indicator variables are used for WHTs in models for growth in CiC and deposit ratio, covering July 2004-June 2017 period. Actual total FBR tax and WHT tax revenues are used in logarithmic form in third model covering July 2015-April 2017. * and ** indicates 5 and 10 percent level of significance. Figures reported in parenthesis are *p*-values.